Center Independent Research & Development: JPL IRAD

Mars Sample Transfer Testbed (MSTT)

Completed Technology Project (2013 - 2017)

Project Introduction

Establish a testbed and develop robotic technology to demonstrate capability to retrieve a surface cache of Mars samples and deliver that cache to a Mars Ascent Vehicle.

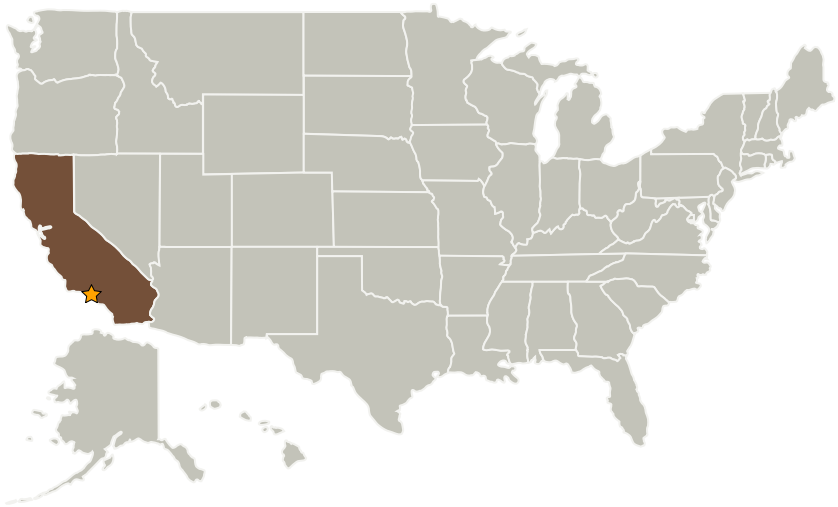
The task will assess the requirements for a testbed to study the retrieval of a Mars sample cache from the Martian surface, or from a Mars caching rover, and subsequent delivery of that cache to the upper stage of a Mars Ascent Vehicle for launch into Mars orbit. The testbed will be implemented and used to develop and demonstrate prototype architectures and technologies for cache retrieval and transfer.

Anticipated Benefits

Results of this effort will be fed back to the Mars 2020 mission to inform their design of the sample caching system, including cache design and location of the sample caching system on rover.

Results of this effort will demonstrate capabilities needed for a potential future Sample Retrieval Lander mission.

Primary U.S. Work Locations and Key Partners



Mars Sample Transfer Testbed

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Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Center Independent Research & Development: JPL IRAD

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Project Management

Program Manager:

Fred Y Hadaegh

Project Manager:

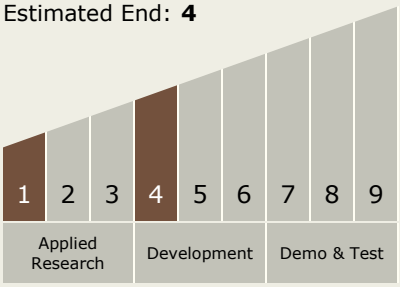
Jonas Zmuidzinas

Principal Investigator:

Eric A Kulczycki

Technology Maturity (TRL)

Start: **1**
Estimated End: **4**



Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.2 Mobility
    - TX04.2.2 Above-Surface Mobility